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fois, car à mon avis c'est au Petit Trianon que Marie Antoinette a passé les journées les plus heureuses de sa vie. Je vais vous la montrer déguiser en paysannes dans son petit hameau.

(On entend sonner onze heures.)

La grand'mère. Mais, mais! Ce sera pour une autre fois, grand-père. Fais vite allumer le gaz! Onze heures, et nos enfants qui ne sont pas au lit!

FIFTH GRADE.

REVIEW FOR FEBRUARY AND MARCH.

HARRIET T. B. ATWOOD.

Geography.—Hudson river valley: In beginning the study of the Hudson river valley the children performed an experiment in the sink to see the effect of submergence of the land upon the lower courses of rivers. In a quantity of sand, placed in one end of a sink, two of the children modeled several ravines, similar to those they had seen in nature. As they worked, the rest of the children noted and discussed the shape and size of the ravines at various points, and decided where the streams must have been located. Water to the depth of about one-half inch was let into the part of the sink not covered with sand, to represent the ocean into which the streams flowed. Then, by means of a hose, water was added until a depth of about four inches was reached, thus submerging a portion of the coast and drowning the lower portions of the valleys.

Drawings were made on the blackboard representing the ravines before and after the drowning took place. In the discussion that followed, the children considered the influence which submergence of the land would have on the valleys they had seen, and on certain valleys shown in pictures about the room. Maps and pictures of typical submerged coasts were examined. Many pictures of the Hudson were shown to the class.

After the study of the lower portions of the Hudson valley we examined the area drained by that river and its tributaries, modeling in sand the Hudson river basin and surrounding land. The historic importance of the Hudson valley as a gateway or pass to the lands of the north and west of the mountains was one of the points emphasized in the lesson.

History.—The New York colony: We began the study of New York by taking an imaginary trip to that colony from Virginia. A large colored picture, drawn by a member of the pedagogic class, representing a typical street in old New York, and several smaller pictures which showed details in architecture, the dress and customs of the people, etc., were used to give the children an idea of the life of the Dutch colony. Selections from several books[1] were assigned to the different children, and each child was asked to report to the class all the new points which he found in the books regarding the life of old New York.

As the differences between this colony and the English colonies previously studied became apparent, the children were very much interested in finding out more about the Dutch people who had founded New Amsterdam. They read of Henry Hudson's voyages, and of the settlement of Fort Orange, Fort Nassau, and New Amsterdam. They are also reading about the Dutch people in their native land, and comparing the customs of the Dutch of Holland with the customs of the Dutch of old New York.

For oral reading the children have begun Irving's *Rip Van Winkle.*

Cooking.— Cereals: In beginning the study the children cooked for their luncheons some of the common breakfast cereals, as rolled oats, Pettijohn's crushed wheat, cream of wheat, malted breakfast food. They noticed that the latter two required much more water than the first two. The difference was seen to be, not in the grain, but in fineness, there being more material in one-half cup of the fine grain than in the same amount of coarse.

To answer the question why it is necessary to boil the cereals, the presence of starch was shown by testing with iodine, and the children performed some experiments to see the effect of different temperatures upon starch. The directions given for these experiments were as follows: "Mix half a teaspoonful of cornstarch with half a tumbler of water, and let it stand. Mix the same amount of cornstarch and water in a beaker, and heat to 140° F., and let stand a few hours. Use the same amounts of cornstarch and water, and boil. Examine a portion of each under the microscope."

The children next made some crude corn cake, crushing their own corn in stone mortars, mixing the coarse meal thus obtained with water, and baking the mixture. They were asked to find out how corn bread is made in their own homes, and afterward they made some corn cake for luncheon, using flour, egg, and baking powder in addition to corn meal. They also made flour muffins.

The next work undertaken was the making of baking-powder biscuits. After watching the cooking teacher make biscuit, the children wrote out their own recipes for the same, and in the following lesson made biscuit for luncheon. After making the biscuit they discussed the question of the difference between the corn bread made from the corn of their own crushing and the later corn and wheat muffins and biscuit. They decided that fineness and lightness were the advantages of the latter, but they had no very accurate notions as to how the lightness had been brought about.

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[1] ALICE MORSE EARLE, *Colonial Days in Old New York,* and *Home Life in Colonial Days;* HIGGINSON, *Young Folks' History of United States;* EGGLESTON, *A First Book in American History;* WRIGHT, *Children's Stories in American History.* See also references in March issue of ELEMENTARY SCHOOL TEACHER, p. 553.

The class made a trip to a large flour mill at about this time to see the milling processes—grinding, etc.

In order to see why using baking powder made the dough light, the children performed the following experiments:

Experiment 1: (*a*) Taste cream of tartar; (*b*) dissolve a little cream of tartar in water and put a drop of the solution on blue litmus paper; (*c*) put a drop of vinegar on litmus paper; (*d*) try lemon juice in the same way; (*e*) try hydrochloric acid.

Experiment 2: (*a*) Taste baking soda; (*b*) dissolve some in water and put a drop upon red litmus paper; compare with cream of tartar.

Experiment 3: (*a*) Add water to soda; (*b*) add some acid (as vinegar) to soda; (*c*) add acid to marble and compare with (*b*); (*d*) add a solution of cream of tartar to soda; (*e*) add water to baking powder; (*f*) taste baking powder and test it with litmus. Why are soda and cream of tartar the two chief ingredients of baking powder?

Experiment 4: (*a*) Mix a teaspoonful of baking powder with water and boil it; (*b*) mix soda and cream of tartar with water, and boil. What does the baking powder contain not present in the others? Prove it in another way.

Experiment 5: (*a*) Put some baking powder into a test tube and add water to it; hold the mouth of the test tube near the mouth of another test tube containing lime water, and note the effect on the lime water; (*b*) try the same experiment, using marble and acid in place of the baking powder; (*c*) breathe through a glass tube into lime water.

No attempt was made in these experiments to give the children an understanding of the chemistry of baking powder. The results that they obtained led to the following simple conclusions:

1. Cream of tartar tastes sour and has the same effect as familiar acids.
2. Soda tastes "soapy" and has an effect opposite to that of acids.
3. Some gas comes from soda when water is put on it, and much more when vinegar or cream of tartar is added. No gas is obtained from cream of tartar and water. Baking powder and water give the gas abundantly.
4. Baking powder does not change litmus paper at all, and has little taste.
5. Soda is used for baking powder because a gas can be obtained from it. Cream of tartar is used to set free the gas, and to take away the taste of the soda.
6. This same gas is given off from the breath, and from marble.
7. Baking powder contains starch.

The question of why the dough made from wheat flour should be the lightest is the next point for discussion. The children have made mixtures of corn starch and water, corn meal and water, and flour and water, noting the consistency of each mixture. Experiments with the washing of gluten from the flour will be the next work undertaken, and after that the making of yeast bread.

Physical training (Carl J. Kroh).—May and June : Class-rooms, regular practice order. Gymnasium and outdoors (see seventh and eighth grades). Play periods : volley-ball, dodge-ball, battle-ball, etc. Outings to the parks. Sack-relays between files—passing of sacks with changes in alignment ; link-chase. Forms of antagonistics, pushing and pulling, standing and moving about, hopping. Outdoors: high and broad jumping, pole-vaulting, quoit-pitching. Sports.

French (Lorley A. Ashléman).—

AU CLAIR DE LA LUNE.

Le chœur.
Au clair de la lune,
C'est là le couplet
Qu'en léger costume
Arlequin chantait.
Cherchant qui l'abrite
Contre le verglas,
Il errait sans gîte,
Un panier au bras.

Arlequin.
" Au clair de la lune,
Mon ami Pierrot,
Prête-moi ta plume
Pour écrire un mot.
Ma chandelle est morte,
Je n'ai plus de feu :
Ouvre-moi ta porte
Pour l'amour de Dieu ! "

Le chœur.
Au claire de la lune
Pierrot répondit :

Pierrot.
" Je n'ai point de plume,
Je suis dans mon lit.
Mais va chez Léandre,
Bien sûr, il y est ;
J'entends dans sa chambre
Qu'on bat le briquet."

Le chœur.
Au claire de la lune
S'en fut Arlequin
Tenter la fortune
Au logis voisin.

Arlequin.

" Léandre, ouvrez vite !
J'ai mon pauvre nez,
Tant le froid l'irrite,
Tout enchifrené."

Le chœur.

Au clair de la lune
Léandre en bon cœur,
A, sans crainte aucune,
Ouvert au chanteur.

Léandre.

" Entre, camarade !
Charmé de te voir,
Pour ton nez malade
J'ai juste un mouchoir."

Le chœur.

Au clair de la lune
Arlequin transi,
En soignant son rhume,
Répond——

Arlequin.

" Grand merci !
Moi, pour notre veille,
J'apporte un pâté
Et cette bouteille
De vin cacheté !"

Le chœur.

Au clair de la lune
Pierre les entendait ;
Mais, dans l'ombre brune,
Le chat qui rôdait . . . .
Avait de son maître
Happi le rôti
Et par la fenêtre
Le voilà parti !

The fifth grade sang with dramatic action and in costume "Au clair de la lune" for morning exercise. While memorizing the "Ronde" many of the verses were taken for dictation. All the verbs of the first conjugation were conjugated in the present and imperfect tenses, negatively and affirmatively.

REVIEW FOR MARCH.

(FRANCIS W. PARKER SCHOOL.)

WILLARD STREETER BASS.

History.—After the class had compared the social and industrial conditions in Virginia with those in New England, each pupil wrote a story of boy life in one or the other colony. Each pupil read his story before the class, which was allowed to criticise it. The criticisms were directed, first, to the historical possibility of the story and, secondly, to the clearness with which it was told.

The following story is the longest and the most elaborate one written. The interest of the writer in it is shown by the fact that she wrote a great part of it at home, although no such suggestion had been made by the teacher. The only changes made here from the pupil's copy are the corrections of one or two mistakes in spelling, two omissions, and two slight changes for the sake of clearness.

THE STORY OF A NEW ENGLAND BOY AND HIS VISIT TO VIRGINIA.

John Winthrope was a little New England boy who lived on the coast of Massachusetts. The house in which he lived was a frame house with a large attic.

Downstairs was a kitchen, a "spare room" (which was never used except on state occasions), and two bedrooms.

The east end of the house was used only for a kitchen and dining-room. Here was a fireplace which measured ten feet by seven. There was a settle on either side of the fireplace, and here John would sit on Sunday evenings and read *Pilgrim's Progress*.

Adjoining the kitchen was a pantry in which were kept butter, cheese, and milk, and it saved Goodwife Winthrope many a trip to the well where she would have kept her butter to keep it cool.

At the back of the house was a cellar with a trap door leading to it. In the cellar were bins for apples and vegetables. Great golden pumpkins and squashes were lying around on the floor.

John had an elder brother who helped on the farm, and a smaller sister.

On week days John went to a school two miles away, which was kept by Master Wadsworth. Sometimes Master Wadsworth would tell the boys to take down the old muskets from the wall, and then he would drill his little company for an hour or so. He thought that some day his boys would have to fight, and not only against the Indians, but against their king.

One day, a hot, uncomfortable day, John's father came running in and told his wife that a message had come from his cousin in Virginia to come and visit him and bring the boy (he meant John) along, as he had a lad somewhat older than John who would like to make his acquaintance. Goodman Winthrope said they would start in a week, and as John needed a new suit he would shear a white sheep and a black one right away. This he did, and he brought it to his wife, who carded it with the help of John's sister.

Next day she sat to work to spin it. A neighbor came in, and while she told her news she spun a great deal. After spinning the wool she wove it in this manner: She threaded her loom, and then she wove first a black thread and then a white one, making what was called "pepper-and-salt" goods.

This done, she cut it into shape and sewed it, and John had a new suit in which to go traveling.

Goodman Winthrope knew of a sailboat which was going to a little settlement south of the Potomac river, and he got a passage on her.

From the mouth of the Potomac they made their way on foot to the house of their cousin.

The first night they had to camp out, as there was no house near. But as John had been trained to endure things like this, it only made him the more hardy.

About noon the next day they arrived at their cousin's house. John thought the house would be like that of his father in Massachusetts, but no one can imagine his surprise at seeing a large stone house among the trees.

After the noon meal was over, George (John's cousin) said: "The slaves have said that there are some wandering tribes from over the mountains encamped but a short distance from here, about seven or eight miles away. Let us go to them and see if we can get some wampum."

So he ordered the horses to be brought, and they rode away.

When they had ridden about three miles, George drew rein on his horse. "What is the matter?" asked John.

"I think we have been riding in the wrong direction, for you see there are no Indians here, and so let us go more toward the south."

They had been riding due east; now they turned and rode more toward the south.

It was getting rather late, and John said they had better go home, but George said: "We will get to some camp soon, and we can send a messenger to my father to tell him that we shall stay all night." So they rode on.

They did not realize how far they had gone, and darkness came on so quickly that before they knew it they were in total darkness.

"Now what shall we do?" It was George that spoke.

"We will have to camp out, it seems," answered John.

"But father will be anxious," said George.

"Your father will very probably send some slaves to look for us. We will build a fire, and they can see it and come to us."

This plan was agreed upon, and they dismounted, and John built a fire while George tried to tether the horses to a tree. He did not succeed, however, for he was so used to being waited on that he had not learned to wait on himself.

John came to his aid, and they were soon seated around their fire and talking contentedly.

"Tell me of your home life, for as yet I have not noticed much of it," said John.

"I go to a school on week days, and I play athletic games with other gentlemen's sons, as you do very likely," George answered.

"Nay, I hardly ever play, as father thinks it childish," said John. "But proceed, tell me of your house. How many rooms has it?"

"As you have most likely seen," replied George, "my father is rich. I do not wish to boast, but he is, and he hired some ships and loaded them with stone slabs which he bought in England, and they sailed to Virginia, and then sailed up the Potomac river to the land which belongs to my father, and here they deposited their burden on the shores. Now father hired skilled men to build a mansion such as had been his in England.

"After a while mother and I came over, and she brought with her tapestry, linen, dishes, feather beds, and everything to make a comfortable home."

As he ended, John drew a long breath. "Such luxuries are not known in New England," he said. "But tell me, how many rooms does your house contain ?"

"In the lower apartment there is a large hall for festivities, and there are also three sleeping-rooms and three other rooms which are used for entertaining company when there is such. Also upstairs are a great many sleeping-rooms, and"—he paused—"I impart it to you alone, there are three secret chambers of which no one knows excepting father, mother, and myself. Here it is that father keeps his money—all of the valuable things, in fact; and now that you know it, it must be forever a secret."

As he ended, they heard the horses snort and paw the ground as if frightened.

"What makes the horses so restless ?" asked John.

"Probably a wolf or some other animal. We need not be frightened," answered George.

"Well, who said I was ?" thought John, although he said nothing.

Finally both awoke, to find both arms and legs bound so that they could not move.

"Where am I ?" exclaimed John, raising himself with an effort. He looked around and saw George bound in the same way.

He glanced around and saw a great many hideously painted Indians.

"What does this mean ?" he cried fiercely, struggling to free himself.

At this moment George awoke and, staring around in a dazed way, saw John and asked him what was the matter and why they were bound.

John was about to answer when one of the Indians stepped forward and said in broken language that they were going to hold them for ransom, and they had already dispatched a runner to notify the people at the "big house."

The boys were made to get up and walk to a camp a mile or so away, and here they were treated kindly, but they were kept under a strong guard.

George, who understood a little Indian language, told John that, judging from what he heard, the runner had not yet returned.

That night both boys were awakened by a voice close to their ears telling them to rise.

When they opened their eyes they saw an Indian maiden who told them again to rise and follow her. She also told them that she had put their guards sound asleep, and that they could now escape if they were quick.

The boys followed her, and she led them into the clear moonlight. At the edge of the village they found two horses waiting, and, thanking the girl again and again,, they rode home.

MARGARET PRUSSING.

The remainder of the work in March followed closely the outline presented on p. 553 in the March number of the ELEMENTARY SCHOOL TEACHER.

Geography.—The geographic work in connection with history was the study of the topography of New York, especially of the Hudson and Mohawk river system. The pupils knew of the Dutch boast of having obtained a better location for commerce than the English had in either New England or Virginia. They read what they could about the present commerce of New York, in Carpenter's *North America*, and found that the boast was entirely justifiable. We then set to work to find the reasons for the commercial supremacy of the city. The excellent harbor was at once mentioned as one, and a very important, reason; but, as good harbors alone do not create large cities, we decided to look for further reasons. The pupils studied relief maps of the Appalachian mountains, and the teacher, working under their direction, modeled on the large sand table a map of the northern part of this chain. From this map it was evident that the lowest and easiest path over the mountains was through the valley of the Mohawk. This was of immediate advantage to the Dutch, as it gave them easy access to a region affording a very profitable fur trade. Later, the lowness of this route made the Erie canal possible, and by the transportation which was thus afforded New York's development increased by leaps and bounds. At the present time, when railroads instead of canals are the controlling factor in commerce, the valley of the Mohawk is occupied by a great railroad connecting New York with the West.

The character of the Hudson valley was studied from pictures, and a laboratory experiment was devised to show the method of its formation and to account for the presence of so many islands in the harbor. The experiment was performed in the same sink described in the last number of this magazine. Sand was placed in one end of the sink as before, and a spray of water allowed to fall upon it until well-defined rivers were formed. The level of the outlet was then raised, and the water flowed up the river valleys, partially submerging them. Each pupil wrote a paper describing the results he observed. One of them is here printed:

ONE WAY OF MAKING ISLANDS.

First there is a continent. Then it begins to rain. The rain makes rivers, and the rivers carry down sand and make deltas. In the continent some sand is soft and some is hard. The rain washes the soft sand down, and the hard sand is left up making mountains. Next the water rises up around the mountains and makes islands.—*Norman Preble.*

Nature study.—The excursion of the class to the gas-works in January led to the question: "How can gas be made from coke, which contains no gas, and from water, which is not a gas?" The answer which had to be given at the time, that the gas comes from the steam, really explained nothing to the class, and it was believed that a more elaborate explanation, while sure to lead to other questions beyond the reach of the fifth grade, would nevertheless prove profitable. The following experiments were undertaken:

Water was decomposed by electrolysis, and the two gases which were available for the manufacture of water gas were thus made apparent to the class. We called the two gases oxygen and hydrogen, and proceeded to make them by other methods and in larger quantities in order that we might discover some of their properties.

The class went to the laboratory, and each member made oxygen by the usual method of heating a mixture of manganese dioxide and potassium chlorate. Each pupil then burned a substance—wood, charcoal, sulphur, or some other—in his oxygen, while the rest of the class watched.

On account of the greater difficulty in manipulating the apparatus for making hydrogen, only one lot was made and that under the immediate direction of the teacher. The usual experiments for showing the lightness, the combustibility, and the explosiveness of hydrogen were performed. [Directions for these may be found in any text-book on chemistry. Those in Williams's *Introduction to Chemical Science* are clear and simple.] Lastly, a dry glass vessel was placed over a jet of burning hydrogen, and the water formed by its combustion was collected in the form of fog, which soon formed drops and ran down on the glass.

The discussion of this experiment was the most interesting part of this work. To the question, "Where does the water on the glass come from?" the class replied, "From the burning hydrogen;" and then one pupil inquired, "What else is there in water besides hydrogen?" It was recalled that we had also obtained oxygen from water by electrolysis. Then came the question, "What is there in water besides hydrogen and oxygen?" This was immediately repeated in another form: "What was there left after we had taken the hydrogen and oxygen out of the water?" The electrolysis experiment could furnish no answer to this question, as the diminution in the volume of water in making any moderate amount of the gases is too small to be measured. Apparatus for the quantitative union of oxygen and hydrogen not being at hand, we returned to the experiment of burning hydrogen in air.

The teacher asked, "If hydrogen burning in air forms water, what can there be in water besides hydrogen and oxygen?" "Nitrogen," replied the class. The light of a new discovery shone in the face of one of the pupils. "There *is* nitrogen in water," said he, "and that's the reason that it puts out fire."

We knew that nitrogen and oxygen exist side by side in the air and do not unite. We tried to see whether hydrogen would unite with nitrogen by making a jar of nitrogen and inserting a jet of burning hydrogen in it. The hydrogen was immediately extinguished. This convinced the class that nitrogen, having such a strong disinclination to unite with either oxygen or hydrogen, would probably not unite with the two and so would not be found in water. The next day, however, one pupil was back with the declaration that, although hydrogen would not burn in nitrogen, he thought that the nitrogen might enter the combination while hydrogen was burning in air. As there is no *a priori* reason why it should not, we were compelled to leave the matter with the statement, which one of the pupils brought from home, that oxygen and hydrogen are the only constituents of water.

This rather long account of the above discussion has been written to show that fifth-grade children are capable of rather close thinking upon problems usually reserved for higher grades, or sometimes for the high school.

Notwithstanding the degree of thought-power shown by the pupils, there were only one or two in the class who had or who acquired sufficient manual dexterity to manage successfully all the apparatus necessary in the above experiments. The teacher, therefore, is of the opinion that these experiments on the permanent gases would be more profitable if performed two or three years later, when the individual pupil could perform all the experiments for himself.

Number.—Few problems in number were involved in the work in nature study, and the number work for the month was mainly drill problems in fractions.

SEVENTH GRADE.

READING LESSON IN GERMAN.

EDUARD PROKOSCH.

PARZIVAL.

König Gamuret von Anjou war ein ritterlicher Held, der lieber in fernen Ländern kämpfte, als zu Hause ausruhte. Er fiel im Dienste des Chalifen von Bagdad in einer Schlacht. Seine Frau verliess ihren Palast und floh mit ihrem kleinen Sohne Parzival in die Waldeseinsamkeit, damit dieser nichts vom Ritterthume höre, das seinem Vater den Tod gebracht hatte.

Einmal begegnete der Knabe im Walde einem Ritter in glänzender Rüstung. Er hielt ihn für Gott, denn seine Mutter hatte ihm gesagt, Gott sei heller und glänzender als der Tag. Als der Ritter ihm sagte, dass König Artus zum Ritter mache,